What is claimed is:

1   1. In a VCT system, a method for identifying a direction of cam torque, the method
2   comprising the steps of:

3   providing a cam sensor wheel having a plurality of teeth including an index tooth
4   formed upon the circumference of the cam sensor wheel;

5   providing a sequence of pulses corresponding to the plurality of teeth; and

6   using one tooth among the plurality of teeth for identifying the direction of
7   cam torque.

1   2. The system of claim 1 further comprising the step of using the plurality of teeth
2   to determine a dead time.

1   3. The system of claim 2 further comprising the step of pausing controller
2   updating during dead time, thereby when there is no torque available to
3   drive the VCT towards its commanded position, the controller stops
4   accumulating unnecessary values.

1   4. The system of claim 1, wherein the plurality of teeth is symmetrically
2   distributed upon the circumference of the cam sensor wheel.

1   5. The system of claim 1, wherein the plurality of teeth is asymmetrically
2   distributed upon the circumference of the cam sensor wheel.

1   6. The system of claim 1, wherein the one tooth is the index tooth.

1   7. The system of claim 1, wherein the VCT system is a CTA VCT system.

1   8. The system of claim 1, wherein the VCT system is a TA VCT system.

1   9. The system of claim 1, wherein the VCT system is a OPA VCT system.

1   10. The system of claim 1, wherein the cam tooth wheel is asymmetric.

1   11. The system of claim 1, wherein the cam tooth wheel is symmetric.